Solitude Landfill
Ground Water Monitoring And Liner Exemption
Statement of Basis

Green River Landfill, LLC has applied for a solid waste permit to construct and operate the Solitude Landfill on 320 acres of privately owned land located nine miles east of the City of Green River, Utah. The permit application includes a request for exemption to the requirements for a Class V landfill to be constructed with a bottom liner and conduct ground water monitoring at the site. The information provided in support of the exemption request has been reviewed and has been determined to qualify for the exemption. This exemption is based on the following factors:

- The climate in the area is very dry, with average annual precipitation of 6.5 inches and evaporation of approximately 56 inches.

- Ground water is at a depth of at least 200 feet below the site, and possibly as deep as 1,000 feet or more.

- The site is underlain by Mancos Shale, a highly impermeable dark gray marine shale. The Mancos Shale is at least 1,100 feet thick below the site. It is weathered near the surface, but rapidly grades with depth to a competent shale. Permeability values for the Mancos Shale are in the range of 10^{-7} to 10^{-13} cm/s.

- The ground water in aquifers below the site is of very poor quality. Samples of perched water obtained from drill holes near ephemeral streams at the site have total dissolved solids (TDS) values ranging from 9,400 to 30,000 mg/l; regional studies of the deep aquifers in the region indicate ground water TDS values range from 500 to 14,000 mg/l. There are no wells located within five miles of the site.

- Modeling of open and closed landfill cells shows minimal amounts moisture infiltration through the bottom of the landfill, on the order of hundredths to thousandths of an inch per year. The majority of precipitation is lost through evaporation.

- The final cover on the landfill will minimize infiltration. From bottom to top, it consists of 18 inches of low permeability (10^{-7} cm/s) compacted native clay, 24 inches of soil, and 6 inches of coarse aggregate for erosion protection. The final cover design, including the low permeability clay, is an integral part of the liner and ground water monitoring exemption.